

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-4 in the reply filed on 2/17/10 is acknowledged.

Claim Objections

Claim 3 is objected to because of the following informalities: in line 2, it appears that "hydrogen-hased" is a typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 recites the limitation "the hydrogen-based gas and the oxygen based gas" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 02/090621 (US 7459071 (Omasa) is used herein for citation purposes).

Omasa teaches a method for making a hydrogen-oxygen gas using a hydrogen-oxygen gas generator comprising an electrolytic cell, an electrode group formed from a first electrode and a second electrode installed in the electrolytic cell (the positive and negative electrode (Abstract) contact the electrolytic fluid (col. 8, lines 10-15), a power supply for applying a voltage across the first and second electrodes, a vibration-stirring means for stirring and agitating (vibrating) the electrolyte fluid within the electrolytic cell, a gas trapping means for collecting the hydrogen-oxygen gas (col. 14, lines 55-67).

The instant invention teaches that the vibration-stirring means is a vibration motor extending into the electrolytic cell and the vibrating blade vibrating at 10-500 Hertz (current invention, [0149]) and an amplitude of 0.1-30 mm (current invention, [0149]) and a frequency of 600-30,000 times per minute (current invention, [0149]).

Similarly, Omasa teaches the vibration-stirring means is a vibration motor extending into the electrolytic cell and the vibrating blade vibrating at 10-200 Hertz (Omasa, col. 15, lines 20-26) and an and an amplitude of d an amplitude of 0.1-15 mm (Omasa, col. 16, lines 1-10) and a frequency of 200-1,000 times per minute (Omasa, col. 16, lines 1-10).

The instant invention teaches an electrolyte fluid of water with electrolytic material (KOH, *inter alia*) in an amount from 5-30 % at a pH of 7-10 (current invention, [0195]). Similarly, Omasa teaches an electrolyte fluid and water with electrolytic material (KOH, *inter alia*) in an amount from 5-10 % at a pH of 7-10 (Omasa, col. 9, lines 1-12).

The instant invention teaches a gas trapping means including a lid member which is installed on the electrolytic cell, seals said electrolytic cell and has a hydrogen-oxygen gas extraction outlet (airtight seal, [0199]) and an opening through which the vibrating end extends (current invention, [0199]). Similarly, Omasa teaches a gas trapping means including a lid member which is installed on the electrolytic cell, seals said electrolytic cell and has a hydrogen-oxygen gas extraction outlet (airtight seal, col. 9, lines 20-40) and an opening through which the vibrating end extends (Omasa, col. 15, lines 5-20).

The instant invention teaches an electrolysis conditions including the electrolytic fluid temperature being at 20-100°C and an electrical current density of 7-40 A/dm² (current invention, [0201]). Similarly, Omasa teaches an electrolytic fluid temperature being at 20-70°C and an electrical current density of 5-20 A/dm² (Omasa, col. 2, lines 50-60).

Additionally, it appears that the electrolytic cell is substantially similar and/or equivalent to the electrolytic tank of the claimed invention in the absence of a showing to the contrary.

There appears to be significant overlap between the process steps (vibration (Hertz), vibrating amplitude (mm), vibrating frequency (times per minute), characteristics of electrolytic fluid (pH, % of electrolytic material), and the electrolytic process (temperature, electrical current density) as discussed, *supra*. Therefore, it appears that the hydrogen-oxygen based gas of the prior art and the hydrogen-oxygen based gas of the claimed invention are substantially similar in the absence of a showing to the contrary.

Therefore, it appears that the apparatus and process of the prior art and the apparatus and process of the claimed invention are substantially similar such that the hydrogen-oxygen based gas of the prior art and the hydrogen-oxygen based gas of the claimed invention are substantially similar in the absence of a showing to the contrary.

In the alternative, for the parts of the ranges of the process steps of the claimed invention and Omasa that do not overlap (vibration (Hertz), *inter alia*), it appears that the variances in the hydrogen-oxygen based gas of the prior art and the hydrogen-oxygen based gas of the claimed invention would at least be small enough such that the differences in the two products would be obvious. MPEP 2112, 2131.03.

Regarding claim 4, it appears that the prior art apparatus and method teach producing a substantially similar hydrogen-oxygen based gas as described, *supra*. Claim 4 does not appear to add any structural limitations to the hydrogen-oxygen based

gas as taught in the prior art, only that the hydrogen-oxygen based gas is intended to be used as a fuel for a fuel cell. MPEP 2111.02.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL A. WARTALOWICZ whose telephone number is (571)272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Steven Bos/
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